Louisiana Department of Environmental Quality (LDEQ)
Office of Environmental Services

STATEMENT OF BASIS

NOLA Facility
Air Products and Chemicals, Inc.
New Orleans, Orleans Parish, Louisiana
Agency Interest Number: 2062
Activity Number: PER20080004
Proposed Permit Number: 2140-00016-V6

I. APPLICANT

Company:
Air Products and Chemicals, Inc.
14700 Intracoastal Drive
New Orleans, LA 70129

Facility:
NOLA Facility
New Orleans, Orleans Parish, Louisiana
Approximate UTM coordinates are 219.96 kilometers East and 3325.48 kilometers North in Zone 15

II. FACILITY AND CURRENT PERMIT STATUS

The Air Products, New Orleans, (NOLA) facility manufactures hydrogen(H_2), oxygen(O_2), nitrogen(N_2), and argon (Ar_2) as both gaseous and liquid products within Hydrogen Plants "A", "C", and "D", Liquid Hydrogen Plants "A" and "B", Carbon Dioxide Plants "A" and "B", and the Air Separation Plant with 2 nitrogen liquefiers. H_2 and CO_2 are produced via reformation of steam and pipeline supplied natural gas. Production related combustion sources are fueled by natural gas/off-gas. O_2 and N_2 are produced via the cryogenic separation of ambient air.

Within the "A", "C", and "D" H_2 plants, hydrogen gas is produced via the catalytic reformation of steam and pipeline-supplied natural gas (aka: steam-methane reformation). Hydrogen gas can be directed to Liquid Hydrogen Plants "A" & "B" for liquefaction and onsite storage. Hydrogen gas can also be directed offsite via the customer pipeline. Liquid hydrogen is distributed to customers via tank trailer.

Carbon dioxide gas is manufactured with the "C" hydrogen plant process. The gas is directed to the CO_2 Plants for liquefaction and onsite storage. Product CO_2 gas is also sent offsite via a customer pipeline. Liquid CO_2 is distributed to customers via tank trailer and rail car.

In the Air Separation Plant, liquid oxygen and liquid nitrogen are produced via the cryogenic separation of ambient air. The liquid products are used internally within the process units, or are distributed via tank trailer to offsite customers.

NOLA Facility
Air Products and Chemicals, Inc.
New Orleans, Orleans Parish, Louisiana
Agency Interest Number: 2062

III. PROPOSED PROJECT/PERMIT INFORMATION

Application

A permit application dated September 8, 2008, along with supplemental information dated
September 10 & September 30, 2008, January 30 & March 19, 2009, were submitted requesting a renewal and modification of the Part 70 operating permit for the NOLA Facility. On December 28, 2007, Air Products submitted a minor modification application to correct the annual operating hours for EP-94. That application was incorporated into the 9/8/2008 submittal.

Project

On September 8, 2008 submittal, the NOLA facility proposed the following modification and reconciliations:

EP-1, "C" H_2 Plant CO_2 Stripper Vent
- Change calculation basis due to process change

EP-4, "C" H_2 Plant Condensate Stripper
- Change to GC XVII Activities

EP-30a, "C" H_2 Plant Reformer Flue Stack
- Change the emission factor. CO emissions changed from 4.22 TPY to 35.26 TPY
- Change the emissions of NO_x & PM_{10}

EP-30b, "C" H_2 Plant Auxiliary Boiler
- Reduce the firing rate
- Revise the emission factor, CO emissions changed from 12.24 TPY to 31.74 TPY
- Change the emissions of NO_x, PM_{10}, SO_2, & VOC

EP-59, "C" H_2 Plant Flare
- Change emission calculation basis

EP-63, "A" H_2 Plant Desulfurization Reactivation Vent
- Change to GC XVII Activities

EP-65, "C" H_2 Plant Desulfurization Reactivation Vent
- Change to GC XVII Activities

EP-76, "C" H_2 Plant Startup/Shutdown Emissions
- Revise emission calculation
- CO emissions changed from 71.05 TPY to 171.16 TPY.

EP-85, Refinery Off-gas Pipeline Fugitive Emissions
- Revise VOC emission calculation

EP-91, "B" CO_2 Plant TSA Reactivation Vent
- Change emission calculation basis to reflect actual process conditions

EP-93, "A" HP 50 psig Steam Vent
- Delete this emission point

NOLA Facility
Air Products and Chemicals, Inc.
New Orleans, Orleans Parish, Louisiana
Agency Interest Number: 2062

EP-94, "D" H_2 Reformer Flue Vent
- Change operating hours

EP-95, "D" H_2 Plant Vent Header
- Change CO emission calculation

EP-104, "A" CO_2 Plant TSA Reactivation Vent
- Change emission calculation basis to reflect actual process conditions

On September 30, 2008 submittal, the NOLA facility proposed the following modification and reconciliations:

EP-42A, Oil/Water Separator
- Change to Insignificant Activities

EP-8B, Oil/Water Separator
- Change to Insignificant Activities

On January 30, 2009 submittal, the NOLA facility proposed to add the ION Transport Membrane (ITM) Syngas Project. The process is a variation of existing auto thermal steam reforming. The product syngas is a mixture of hydrogen and carbon monoxide, with small amounts of water, carbon dioxide, and methane. The ITM process can be divided into four steups:

- Catalytic Pre-Reforming
- ITM Syngas Reactor
- Syngas cooling
- Disposition of Product Syngas

Proposed Permit

This permit will be a modification to 2140-0016-V5 dated May 29, 2007, for above referenced facility.

Permitted Air Emissions

Estimated emissions from the facility in tons per year are as follows:

Pollutant	Before	After	Change
PM_{10}	41.52	53.38	+11.86
SO_2	14.36	13.60	-0.76
NO_X	363.23	375.65	+12.42
CO	323.57	504.33	+180.76
VOC	110.46	150.93	+40.47

The Changes are due to the proposed modifications and reconciliation stated above.

NOLA Facility
Air Products and Chemicals, Inc.
New Orleans, Orleans Parish, Louisiana
Agency Interest Number: 2062

Estimated emissions increases due to the above referenced modification and reconciliation based on actual to potential, irrespective of any decreases, in tons per year is as follows:

Pollutant	Actual Emissions	Post Project Emissions	Change
PM_{10}	-	0.05	+0.05
SO_2	-	-	-
NO_X	-	5.30	+5.30
CO	4.20	32.67	+28.47*
VOC	36.13	70.67	+34.54*

*The increases are based on the potential emissions. The "reasonable possibility" standard is not required.

PSD review is not required as the net increase in emissions is less than the significance levels.

IV REGULATORY ANALYSIS

The applicability of the appropriate regulations is straightforward and provided in the Specific Requirements section of the permit. Similarly, the Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable terms, conditions and standards are also provided in the Specific Requirements section of the permit.

Prevention of Significant Deterioration/Nonattainment Review

Potential emission increases due to the proposed project are not over any PSD significant level. Therefore, PSD review is not required.

MACT Requirements

This facility is a major source of HAPs/TAPs and is subject to the MACT requirement.

Air Quality Analysis

Emissions associated with the proposed modification were reviewed by the Air Quality Assessment Division to ensure compliance with the NAAQS and AAS. LDEQ did not require the applicant to model emissions.

General Condition XVII Activities

The facility will comply with the applicable General Condition XVII Activities emissions as required by the operating permit rule. However, General Condition XVII Activities are not subject to testing, monitoring, reporting or recordkeeping requirements. For a list of approved General Condition XVII Activities, refer to the Section VIII – General Condition XVII Activities of the permit.

NOLA Facility
Air Products and Chemicals, Inc.
New Orleans, Orleans Parish, Louisiana
Agency Interest Number: 2062

Insignificant Activities

All Insignificant Activities are authorized under LAC 33:III.501.B.5. For a list of approved Insignificant Activities, refer to the Section IX – Insignificant Activities of the permit.

V. PERMIT SHIELD

No permit shield is requested.

VI. PERIODIC MONITORING

All monitoring requirements necessary to demonstrate compliance with the applicable terms, conditions and standards are provided in the Specific Requirements section of the permit.

VII. GLOSSARY

Carbon Monoxide (CO) – A colorless, odorless gas, which is an oxide of carbon.

Maximum Achievable Control Technology (MACT) – The maximum degree of reduction in emissions of each air pollutant subject to LAC 33:III.Chapter 51 (including a prohibition on such emissions, where achievable) that the administrative authority, upon review of submitted MACT compliance plans and other relevant information and taking into consideration the cost of achieving such emission reduction, as well as any non-air-quality health and environmental impacts and energy requirements, determines is achievable through application of measures, processes, methods, systems, or techniques.

Hydrogen Sulfide (H_2S) – A colorless inflammable gas having the characteristic odor of rotten eggs, and found in many mineral springs. It is produced by the reaction of acids on metallic sulfides, and is an important chemical reagent.

New Source Review (NSR) – A preconstruction review and permitting program applicable to new or modified major stationary sources of air pollutants regulated under the Clean Air Act (CAA). NSR is required by Parts C ("Prevention of Significant Deterioration of Air Quality") and D ("Nonattainment New Source Review").

Nitrogen Oxides (NO_X) – Compounds whose molecules consist of nitrogen and oxygen.

Organic Compound – Any compound of carbon and another element. Examples: Methane (CH_4), Ethane (C_2H_6), Carbon Disulfide (CS_2)

Part 70 Operating Permit – Also referred to as a Title V permit, required for major sources as defined in 40 CFR 70 and LAC 33:III.507. Major sources include, but

are not limited to, sources which have the potential to emit: ≥ 10 tons per year of any toxic air pollutant; ≥ 25 tons of total toxic air pollutants; and ≥ 100 tons per year of regulated pollutants (unless regulated solely under 112(r) of the Clean Air Act) (25 tons per year for sources in non-attainment parishes).

PM_{10} – Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by the method in Title 40, Code of Federal Regulations, Part 50, Appendix J.

Potential to Emit (PTE) – The maximum capacity of a stationary source to emit any air pollutant under its physical and operational design.

Prevention of Significant Deterioration (PSD) – A New Source Review permitting program for major sources in geographic areas that meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. PSD requirements are designed to ensure that the air quality in attainment areas will not degrade.

Sulfur Dioxide (SO_2) – An oxide of sulfur.

Sulfuric Acid (H_2SO_4) – A highly corrosive, dense oily liquid. It is a regulated toxic air pollutant under LAC 33:III.Chapter 51.

Title V Permit – See Part 70 Operating Permit.

Volatile Organic Compound (VOC) – Any organic compound, which participates in atmospheric photochemical reactions; that is, any organic compound other than those, which the administrator of the U.S. Environmental Protection Agency designates as having negligible photochemical reactivity.